

Claims

1. A transmitting apparatus that power- amplifies a transmitting signal, the apparatus comprising transmitting power amplifying means having a high- frequency power amplifier, wherein the transmitting power amplifying means has a first mode of operating the high- frequency power amplifier as a nonlinear amplifier and a second mode of operating the high- frequency power amplifier as a linear amplifier, and in the first mode, amplitude modulates the transmitting signal and controls an average output level of the transmitting signal by a power supply voltage of the high- frequency power amplifier and, in the second mode, controls an average output level of the transmitting signal before the high- frequency power amplifier and amplitude modulates the transmitting signal having the average output level controlled.
2. The transmitting apparatus as claimed in claim 1, wherein the transmitting power amplifying means has a multiplier disposed before the high- frequency power amplifier and a variable gain amplifier disposed before the multiplier, and, in the second mode, amplitude modulates the transmitting signal by the multiplier and controls the average output level of the transmitting signal by the variable gain amplifier.

3. The transmitting apparatus as claimed in claim 1 or claim 2, wherein an input level of the high- frequency power amplifier is changed according to an average output power of the transmitting signal in the first mode.

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4. The transmitting apparatus as claimed in any one of claims 1 to 3, wherein an input level of the high- frequency power amplifier is changed according to an instantaneous output power of the transmitting signal in the first mode.

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5. A method of controlling a transmitting power when a transmitting signal is power amplified and outputted by a high- frequency power amplifier, the method comprising the steps of:

operating the high- frequency power amplifier as a nonlinear

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amplifier in a first mode to amplitude modulate the transmitting signal and to control an average output level of the transmitting signal by a power supply voltage of the high- frequency power amplifier; and

operating the high- frequency power amplifier as a linear amplifier in a second mode, before the high- frequency power amplifier, to control an

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average output level of the transmitting signal and further to amplitude modulate the transmitting signal having the average output level controlled.

6. A radio communication apparatus for transmitting a transmitting signal from an antenna by radio, wherein the transmitting signal is power amplified by the transmitting apparatus as claimed in any one of claims 1 to 4 and is outputted to the antenna.